Global Movement of Natural Gas by Mode

Global Gas Trade, 2000-2015

CAGR (2000-2014)

2016 Global Trade by Transit Mode

- LNG
  - 32%
  - 346.6 bcm

- Pipeline
  - 68%
  - 737.5 bcm

Source: IGU, LNG Report 2017

Source: BP Energy Outlook, 2017
Types of Pipelines

Diameter of lines in cm

- 50 to 100 cm
- 2 to 15 cm
- 3 to 10 cm
- 10 to 20 cm

- Service line
- Distribution pipe
- Supply pipes

400 kPa
2,400 kPa
5,000 to 10,300 kPa

Steel or plastic
Steel

Source: Adapted from Gaz Métro
Natural Gas Storage

Types of Storage

A = Salt Caverns
B = Mines
C = Aquifers
D = Depleted Reservoirs
E = Hard-rock Caverns

Global Gas Storage Capacity (in bcm)

- Depleted Gas Field: 41%
- Salt Cavern: 11%
- Aquifer: 10%
- Others: 7%
- Depleted Gas/Oil Field: 31%
- 120 bcm
- 89.6 bcm
- 32.1 bcm
- 27.9 bcm
- 20.7 bcm

Source: Adapted from EIA
Source: IEA Natural Gas Information, 2016
LNG

Gas Reserve

Explorer

Export

Import

Exploration

Gas Production & Liquefaction Facilities

Shipping

LNG Import & Regasification Terminals

Extracted gas is processed, purified, and then cooled to -162°C, turning into a liquid.

Reduced in volume 600-fold, the liquid gas is stored in very large tanks, from which it is loaded and shipped.

When the liquid gas shipment arrives at its end-use destination, it is unloaded and stored in import terminals.

Later, the liquid gas is reheated and delivered to customers via the pipeline network.

LNG may also be used directly, as fuel in certain applications, such as shipping.
LNG Markets (R)Evolution

Source: IHS, Markit, IEA, IGU
Global Gas Liquefaction Capacity

Current Status (MTPA)

Future Growth (MTPA)

Source: IGU World LNG Report 2017
Regasification

Regasification Capacity: Current Status (MTPA)

The Evolution of Global Receiving Terminal Capacity

Source: IGU World LNG Report, 2017
Floating LNG Technologies

Floating LNG Facility
- Gas Field
- Liquefaction Plant
- LNG Storage
- LNG Tanker
- Transportation

Floating Storage & Regasification Unit
- LNG Storage
- Vaporizers
- To Pipeline System

Global FLNG Outlook

<table>
<thead>
<tr>
<th>Country</th>
<th>FLNG Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>69.0</td>
</tr>
<tr>
<td>Canada</td>
<td>44.4</td>
</tr>
<tr>
<td>Australia</td>
<td>24.5</td>
</tr>
<tr>
<td>Mozambique</td>
<td>8.4</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
<td>4.4</td>
</tr>
<tr>
<td>Djibouti</td>
<td>3.0</td>
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<tr>
<td>Malaysia</td>
<td>2.7</td>
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<tr>
<td>Mauritania</td>
<td>2.5</td>
</tr>
<tr>
<td>Cameroon</td>
<td>2.4</td>
</tr>
<tr>
<td>Russia</td>
<td>1.3</td>
</tr>
<tr>
<td>Congo (Republic of)</td>
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<tr>
<td>PNG</td>
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<tr>
<td>Indonesia</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>165.6</td>
</tr>
</tbody>
</table>

FSRU Outlook

Source: IGU World LNG Report 2017
FID = Final Investment Decision
Floating Regasification

The Rise of FSRUs among Import Markets, 2000-2022

Note: The above graph only includes importing countries that had existing or under construction LNG import capacity as of end 2016. FSRU = Floating Storage and Regasification Unit

Regasification Costs based on Project Start Dates, 2005-2016

Sources: IGU World LNG Report, 2017; IHS Markit, Company Announcements